

These comments are submitted on behalf of Forest Ethics and Ebbetts Pass Forest Watch to the Forestry Protocol Stakeholder Meeting on February 22, 2008.

Type of measure: regulatory

Forest Ethics and Ebbetts Pass Forest Watch are calling for the following immediate action regulatory measure to meet the requirements of AB32:

Approving evenage management components within a THP today impacts CO2 emission in the AB32 timeframe. Until a CO2 emissions plan is created and a process for evaluation and accounting of THP submissions is devised, no evenage silvicultural methods within THPs may be approved. If any are approved, the agencies that approve them risk violation of AB 32.

Description:

Any analysis of the role forestry plays in carbon sequestration and emissions must look at management practices, avoiding credit for clearcutting forests and plantation conversion. Studies show that while trees do indeed absorb carbon, only about half of the carbon in a forest is in the trees. The rest is in the woody material and soils that has been built up over time (See the studies of Professors Olga Krankina and Mark Harmon for more information on this). This means that when converting a mature forest into a plantation, all the stored carbon in the soils and dead material begins to be released. Even after the area is replanted, it takes years for the plantation to become carbon neutral because of the decaying dead material.

Since 1990, at least 1,100,000 acres have been clearcut or converted to plantations on California's private forestlands. This means a significant carbon sequestration resource has been lost while carbon emissions have been higher than for any other forest disturbance, including fires.

Plantations are at risk from climate change. However, creating or preserving forests that are naturally diverse is a means to increase resiliency to cope with repercussions from climate change and associated impacts. The California Energy Commission says in their *Climate Change Impact on Forest Resources White Paper*¹, "One preventative response is to retain a mixture of species and ages in the mixed conifer forests. Monodominant stands are at most risk. Designing diverse forest structures with multiple species where appropriate alleviates some risk associated with even-aged, single-species stands."

Harvesting mature forests and replacing them with young forests, which is being done in about a third of all California timber harvest is a forest management strategy counterproductive to the goals of AB32.

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<http://www.energy.ca.gov/2005publications/CEC-500-2005-193/CEC-500-2005-193-SF.PDF>

There is a widespread and misguided belief that logging or clearing mature forests and replacing them with fast-growing younger trees will benefit the climate by sequestering atmospheric CO₂. While younger trees grow and sequester carbon quickly, the fate of stored carbon when mature forests are logged must also be considered. When a forest is logged, some of its carbon may be stored for years or decades in wood products. But large quantities of CO₂ are also released to the atmosphere - immediately through the disturbance of forest soils, and over time through the decomposition of leaves, branches, and other detritus of timber production. One study found that even when storage of carbon in timber products is considered, the conversion of 5 million hectares of mature forest to plantations in the Pacific Northwest over the last 100 years resulted in a net increase of over 1.5 billion tons of carbon to the atmosphere.²

Clearcutting is creating a huge, long-lasting emissions source across the state. Professor Mark Harmon discussed the emissions of clearcuts in a comment letter to the Air Resources Board in October 2007.³ In it, he said “Timber harvest, clear cutting in particular, removes more carbon from the forest than any other disturbance (including fire). The result is that harvesting forests generally reduces carbon stores and results in a net release of carbon to the atmosphere. “ These emissions are not a short-lived, one-time event, but are ongoing and lasting.

Research by CarboEurope, a European program that has pioneered research into the carbon budget, reveals that soils in forests release more carbon than their trees will absorb in the first 10 years. Forest soils and the organic matter within them generally contain three to four times as much carbon as does vegetation on the ground. CarboEurope’s researchers contend that, when ground is cleared for forest planting, rotting organic matter in the soil releases a surge of carbon dioxide into the air that will exceed the amount of carbon dioxide absorbed by growing trees for at least the first 10 years of forest growth; only later will the uptake of carbon by the trees begin to offset the release of carbon dioxide from the soil. In fact, their research indicates that some new forests planted on wet, peaty soils may never absorb as much carbon as they release.⁴

The IPCC has also addressed this issue and potential mistakes which could occur in accounting and protocol systems:

² Harmon, M.E., W.K. Ferrell and J.K. Franklin. 1990. Effects on carbon storage of conversion of old-growth forests to young forests. *Science* 247: 699-702. Union of Concerned Scientists. “Recognizing Forests' Role in Climate Change” http://www.ucsusa.org/global_warming/solutions/recognizing-forests-role-in-climate-change.html

³

http://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=forestghg07&comment_num=22&virt_num=22

⁴ F. Pearce, “Tree Farms Won’t Halt Climate Change,” *New Scientist*, Print Edition (October 28, 2002), web site <http://www.newscientist.com/article/dn2958-tree-farms-wont-halt-climate-change.html>. Energy Information Administration: “Emissions of Greenhouse Gases in the United States 2003: Land Use Issues.” <http://www.eia.doe.gov/oiaf/1605/gg04rpt/land.html>

Some definitions of reforestation include the activity of regeneration after disturbance or harvesting, while disturbance or harvesting are not defined as deforestation. In these circumstances credits could be accounted for the regeneration, without debits for disturbance or harvesting, this would lead to an accounting system where the changes in terrestrial carbon do not reflect the real changes in the atmosphere.⁵

Statistics from California timber harvest on private lands from 1995-2006 show that on average over 69,000 acres per year of clearcuts and other evenaged methods have been approved for harvest. Each of these, harvested within five years of approval, continue to produce net CO2 emission for years. When AB32 goes into effect the lingering effects of clearcutting will need to be factored into AB32 Protocols and implementation measures.

However, CALFIRE continues to review and approve Timber Harvest Plans (THPs) without analysis of their impact on the legal mandates of AB32. Every acre of clearcutting and evenaged management being approved at this time and into the future is effecting emissions in 2012 and beyond.

Therefore, Forest Ethics and Ebbetts Pass Forest Watch are calling for the following immediate action regulatory measure to meet the requirements of AB32:

Approving evenage management components within a THP today impacts CO2 emission in the AB32 timeframe. Until a CO2 emissions plan is created and a process for evaluation and accounting of THP submissions is devised, no evenage silvicultural methods within THPs may be approved. If any are approved, the agencies that approve them risk violation of AB 32.

Other considerations for Forestry Protocol development:

Any carbon accreditation system should encourage - through a combination of regulation, incentives, and government purchasing preferences - policies which create forests with longer rotation cycles and a focus on unevenaged management. The only possible instance when evenaged plantation creation could be credited for carbon storage is when land is truly afforested, such as when transitioning from agriculture.

Salvage logging and replanting an area is of questionable carbon benefit. Fires do release carbon, but it is not all released immediately. Studies have shown that 30 years after a fire about half of the carbon of the dead trees will be released, but the other half will be intact. As the carbon remaining after a fire slowly decomposes and is released, it is offset by the sequestration and carbon capture from new growth within the forest. However, if

⁵ “A Report on the Key Findings from the IPCC Special Report on Land-Use, Land-Use Change and Forestry.” Robert T. Watson, Chair of the IPCC. 12th Session of SBSTA. Bonn, Germany. June 13, 2000. <http://www.ipcc.ch/press/sp-lulucf.htm>

the burned forest is immediately logged, remaining intact carbon is lost and soil disruption increases immediate carbon release.

Counting carbon in wood products is another highly speculative endeavor. Carbon is simply not stored in wood products forever, since wood products can easily burn or decompose. The process of making wood products also requires the release of carbon. Studies have shown that the amount of carbon sequestered in wood-based products is less than 20% of the total carbon sequestered in the original forest system.

Included in these comments are several attachments. These will be sent in separate emails to avoid files that are too large to be accepted. These attachments include aerial photos of eight California counties, a data table of CALFIRE-approved timber harvest plan acres, and photos of timber harvest areas in Calaveras and Tuolumne Counties.

Thank you for your serious consideration of these comments.

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Submitted by:

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2/21/08

**CALFIRE Data on approved Timber Harvest Plans
1990-2006**

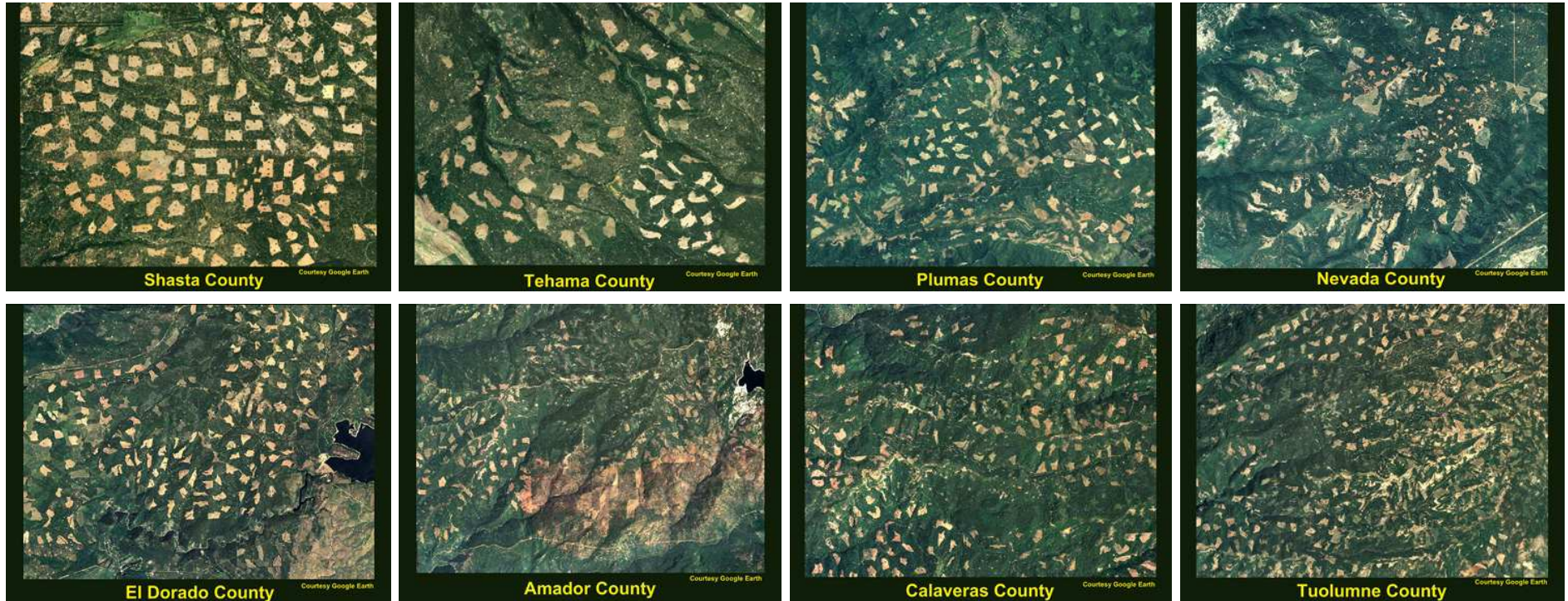
Year	Clearcut*Acres – all counties all companies in CA	equivalent sq miles (640 acres/sq mile): clearcut	Other evenaged mgmt: all CA counties, all companies	equivalent sq miles (640 acres/sq mi): other evenaged mgmt		
1990-1994	67,860	106	222,450	348		
1995-1999	149,628	234	248,769	389		
2000-2006 (7 years of data)	239,615	374	195,078	305		
TOTAL	457,103	714	666,297	1,041		
*clearcutting includes: clearcut, seed tree seed, alternative(clearcut) and seed tree seed) silviculture methods						
**other even-aged mngmt includes: shelterwood removal and alternative (shelterwood removal) silviculture me						

Data obtained and submitted by:
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February 21, 2008
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California Forests in the Sierra Nevada – views of eight counties

(each brown patch area in the forests below has been clearcut or nearly clearcut*)

Appendix A



Images adapted for educational purposes from Google Earth, 2007

Ebbetts Pass Forest Watch

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*In visual retention clearcuts a few trees are left in clearcuts up to 30 acres

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Attachment C



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The three photos above show typical SPI clearcut units, with extensive destruction of habitat values, the removal of oaks and other hardwoods, and visual retention (group) in the top photo and visual retention (dispersed) in the third photo. Photo below shows the extent of destruction of groundcovers, bushes, wildflowers, and other important plant species needed by wildlife for food, shelter from predators, and protection from extreme heat, snow conditions.

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Photo above shows a typical SPI clearcut with extensive bare soil, and in this case, herbicide treatment not even applied yet. Photo below shows typical SPI clearcut after herbicides have killed most surface vegetation.

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CSERC Staff Ecologist

John Buckley
CSERC Executive Director



Forest by Peterson Comments
Forest Ethics/Ebbetts Pass Forest Watch
February 22, 2008



These two photos of recent SPI evenage cut units in Tuolumne County are typical of the way that mature oaks are cut, intentionally removed, and then stacked on landings to rid the site of the oaks. The ecological values of the large, mature oaks are high for wildlife, and are lost because SPI does not abide by the Forest Practice Rules target to retain oak at 400 sq ft per 40 acres.

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For



Photo of this SPI clearcut shows a few broken black oaks left at levels far less than the pre-existing stocking of oak across the unit. Both the photo above and below show extensive bare soil, loss of habitat value, fragmentation of forest connectivity, and watershed impacts.

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Fores
Fores

February 22, 2008



Five years after this unit near Highway 4 was clearcut, only minimal vegetation has reclaimed the site, with the majority of the unit still bare soil. The steep unit below along Cottonwood Road in Tuolumne County is reflective of SPI units on steep hillsides, with heavy erosion, gullying, and watershed degradation, as well as bare soil five years after this unit was originally cut.

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